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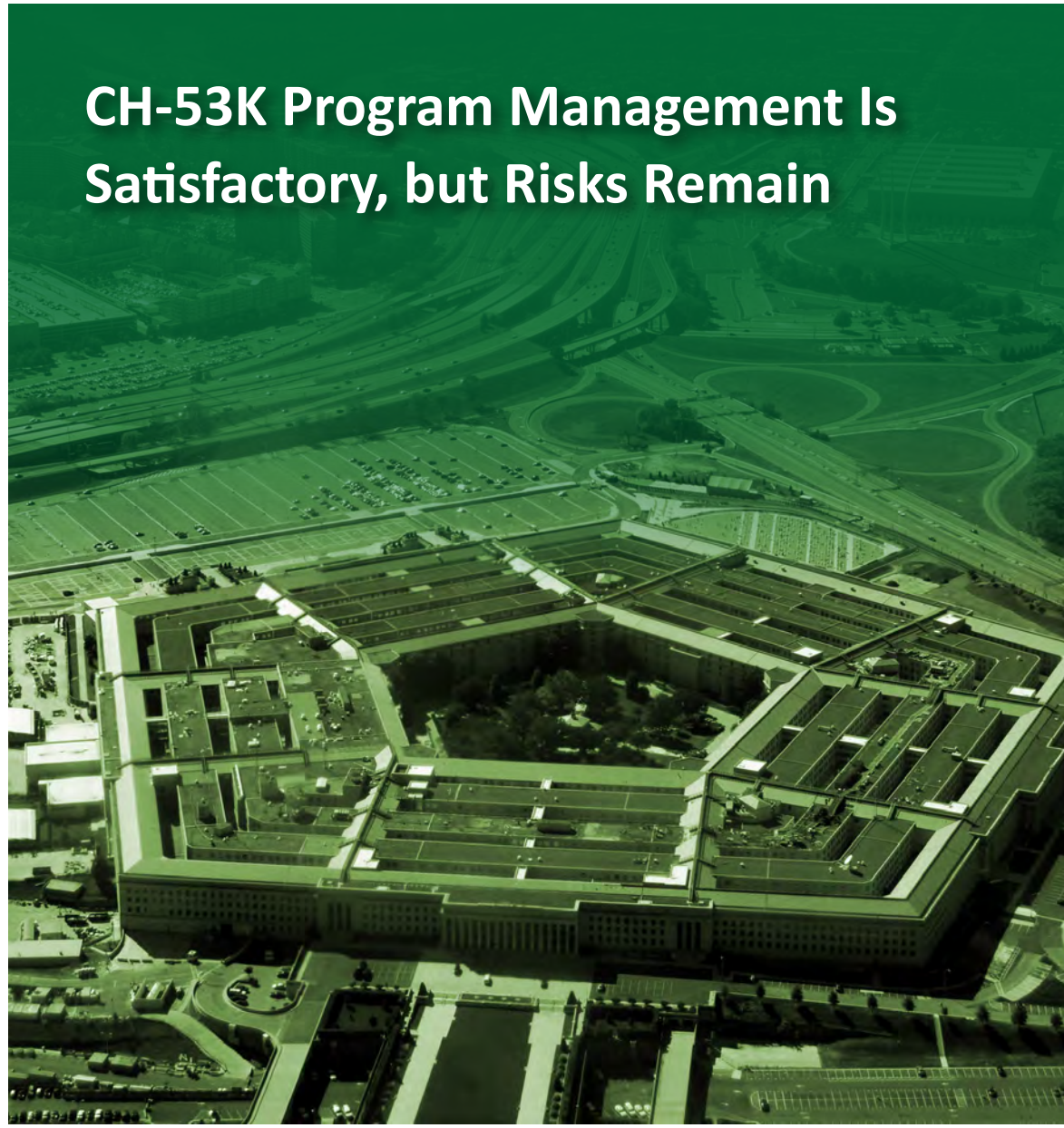
INSPECTOR GENERAL

U.S. Department of Defense

SEPTEMBER 23, 2013



CH-53K Program Management Is Satisfactory, but Risks Remain



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Mission

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Results in Brief

CH-53K Program Management Is Satisfactory, but Risks Remain

September 23, 2013

Objective

Our overall objective was to evaluate Naval Air Systems Command acquisition management of the CH-53K program. This report is the second in a series of audits on the Marine Corps CH-53K helicopter program. For this audit we determined whether Naval Air Systems Command was effectively managing and developing the CH-53K helicopter program for low-rate initial production. The estimated total life-cycle cost of the CH-53K program is \$106.7 billion, and the program is expected to begin full-rate production in September 2019.

Finding

CH-53K program officials generally managed and developed the CH-53K program in accordance with defense acquisition guidelines while preparing for the low-rate initial production decision. However, the program has experienced cost growth and schedule delays since 2009. The CH-53K Program Office:

- made appropriate programmatic decisions during technical reviews and test planning based on the maturity of the system;
- appropriately reported cost growth and schedule delays to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics and Congress

Findings Continued

through reports and summaries in accordance with DoD acquisition guidelines; and

- received approval for an updated Acquisition Program Baseline on April 24, 2013, to address cost growth and schedule delays.

However, the CH-53K Program Office has not begun testing to demonstrate acceptable performance of the ground and flight test vehicles because of contractor manufacturing delays and failures during component testing. As a result of delayed testing, the program is at increased risk of not being ready for the February 2016 milestone for low-rate initial production and is at risk of exceeding cost and schedule goals in the updated Acquisition Program Baseline. Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics representatives are aware of the manufacturing, testing, and performance risks facing the program and the CH-53K Program Office's plan to mitigate those risks.



Figure. Illustration of the CH-53K Helicopter
Source: Sikorsky.com

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**INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500**

September 23, 2013

**MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION, TECHNOLOGY,
AND LOGISTICS
ASSISTANT SECRETARY OF THE NAVY, RESEARCH, DEVELOPMENT,
AND ACQUISITION**

**SUBJECT: CH-53K Program Management Is Satisfactory, but Risks Remain
(Report No. DODIG-2013-133)**

We are providing this report for your information and use. This report is the second in a series of audits on the Marine Corps CH-53K helicopter program. In the first report, we determined that the Deputy Commandant for Aviation, Headquarters Marine Corps, increased the CH-53K procurement quantity by 44 helicopters without adequate justification or support. In this report, we determined the Naval Air Systems Command generally managed and developed the CH-53K program in accordance with defense acquisition guidelines while preparing for the low-rate initial production decision. However, the program has experienced cost growth and schedule delays since 2009. The CH-53K Program Office has not begun testing to demonstrate acceptable performance of the ground and flight test vehicles and remains at risk of not being ready for the February 2016 milestone for low-rate initial production and is at risk of exceeding cost and schedule goals in the updated Acquisition Program Baseline. We considered management comments on a discussion draft of this report in preparing the final and revised the report as appropriate. No written response to this report was required, and none was received.

We appreciate the courtesies extended to the staff. Please direct questions to me at (703) 604-9077 (DSN 664-9077). If you desire, we will provide a formal briefing on the results.

Jacqueline L. Wicecarver
Jacqueline L. Wicecarver
Assistant Inspector General
Acquisition, Parts, and Inventory

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Introduction

Objective

Our overall objective was to evaluate Naval Air Systems Command acquisition management of the CH-53K program. For this audit, we determined whether the Naval Air Systems Command was effectively managing and developing the CH-53K helicopter program for low-rate initial production (Milestone C). See the Appendix for a discussion of the scope and methodology and prior audit coverage.

This report is the second in a series of audits on the Marine Corps CH-53K helicopter program. We reported on the increased CH-53K procurement quantity in Report No. DODIG-2013-084, “Increased Procurement Quantity for CH-53K Helicopter Not Justified,” May 31, 2013. In the first report, we determined that the Deputy Commandant for Aviation, Headquarters Marine Corps, increased the CH-53K procurement quantity by 44 helicopters without adequate justification or support. The Marine Corps agreed to conduct a study to determine the appropriate CH-53K procurement quantity.

Background

The CH-53K program is an Acquisition Category ID Major Defense Acquisition Program¹ managed by the Naval Air Systems Command, PMA-261, in Patuxent River, Maryland (CH-53K Program Office). The CH-53K program entered the third phase of the program life cycle, the Engineering and Manufacturing Development phase,² in December 2005 and is scheduled to enter low-rate initial production in February 2016. The Under Secretary of Defense for Acquisition, Technology, and Logistics [USD(AT&L)], is the milestone decision authority for the CH-53K program and is responsible for approving the program readiness for entry into low-rate initial production.

The CH-53K will replace its predecessor, the CH-53E, providing improved capability to conduct combat assault transport of armored vehicles, troops, heavy weapons, equipment, and supplies in support of Marine Corps operations. Other CH-53K missions include combat assault support for excavation operations and tactical retrieval and recovery operations for equipment, personnel, and downed aircraft. Table 1 depicts the capability differences between the CH-53E and the CH-53K identified by the Marine Corps.

¹ Acquisition Category ID programs are programs that require estimated research, development, test, and evaluation funds of more than \$365 million or procurement funds of more than \$2.19 billion.

² A process map of the *Integrated Life Cycle Management System* is accessible through www.dau.mil.

~~(FOUO)~~ Table 1. CH-53 Capability Comparison

	External Lift Capacity	Internal Weight Capacity	Range Capabilities	Internal Cargo Capacity	Ballistic Protection
CH-53K	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
CH-53E	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

The estimated total life-cycle cost of the CH-53K program is \$106.7 billion, with \$6.3 billion in research, development, test, and evaluation (RDT&E) funds, \$22.2 billion in procurement funds, and \$78.2 billion in operations and support funds. The CH-53K Program Office plans to produce 200 CH-53K helicopters in addition to one ground test vehicle and four flight test vehicles. The ground test vehicle was installed at the test site in January 2013, and according to a CH-53K program official, testing of the aircraft is scheduled to begin in November 2013. The official also explained that testing of the first flight test vehicle is scheduled to begin in September 2014.

Defense Acquisition Guidelines

DoD Directive 5000.01, "The Defense Acquisition System," November 20, 2007, provides management principles and mandatory policies and procedures for managing all acquisition programs. The Defense Acquisition System is the management process used by DoD to provide effective, affordable, and timely systems to the users. DoD Instruction 5000.02, "Operation of the Defense Acquisition System," December 8, 2008, establishes a management framework for translating capability needs into stable, affordable, and well-managed acquisition programs.

Review of Internal Controls

DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013, requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance programs are operating as intended and to evaluate the effectiveness of the controls. The CH-53K Program Office's internal controls over the CH-53K helicopter program were generally effective as they applied to the audit objective.

Finding

Program Management Is Satisfactory, but Risks Remain

CH-53K program officials generally managed and developed the CH-53K program in accordance with defense acquisition guidelines while preparing for the low-rate initial production decision. However, the program has experienced cost growth and schedule delays since 2009. The CH-53K Program Office:

- made appropriate programmatic decisions during technical reviews and test planning based on the maturity of the system;
- appropriately reported cost growth and schedule delays to the Office of the USD(AT&L) and Congress through Program Deviation Reports (PDRs), annual Selected Acquisition Reports (SARs), and Defense Acquisition Executive Summary (DAES) reports, in accordance with DoD Instruction 5000.02; and
- received approval for an updated Acquisition Program Baseline (APB) on April 24, 2013, to address cost growth and schedule delays.

However, the CH-53K Program Office has not begun testing to demonstrate acceptable performance of the ground and flight test vehicles because of contractor manufacturing delays and failures during component testing. As a result of delayed testing, the program is at increased risk of not being ready for the February 2016 milestone for low-rate initial production and is at risk of exceeding cost and schedule goals in the updated APB. Office of the USD(AT&L) representatives are aware of the manufacturing, testing, and performance risks facing the program and the CH-53K Program Office's plan to mitigate those risks.

Appropriate Programmatic Decisions Made

CH-53K program officials made appropriate programmatic decisions during technical reviews and test planning based on the maturity of the system, in accordance with applicable guidelines. DoD Instruction 5000.02 requires testing and technical reviews to be conducted when a system meets established entrance criteria. This is known as an event-driven process, linking program decisions to demonstrated accomplishments in development, testing, and production, as opposed to arbitrary calendar dates.

Entrance Criteria and Performance Goals Established

CH-53K program officials established entrance criteria and performance goals before they conducted technical reviews and before they made critical decisions, such as the

future low-rate initial production decision. The CH-53K Systems Engineering Plan described the Naval Air Systems Command technical review process and stated that the decision to proceed will be based on an event-driven evaluation of the program status in consideration of established entrance criteria, design maturity, and program risk. The Systems Engineering Plan further stated that CH-53K technical reviews will assess the program based on planned entrance and exit criteria outlined in Naval Air Systems Command Instruction 4355.19D, "Systems Engineering Technical Review Process." In September 2008, CH-53K program officials established entrance criteria for the program's critical design review, the most recent CH-53K technical review, and according to the CH-53K post critical design review assessment, successfully met the criteria prior to the critical design review held in July 2010. For example, CH-53K program officials completed 93 percent of the CH-53K design drawings prior to the critical design review, which exceeded the entrance criterion of 90 percent. In March 2011, the Naval Air Systems Command Director of Systems Engineering certified that all critical design review requirements were met. In June 2011, a representative from the Office of the USD(AT&L) stated that the CH-53K program was ready for the second part of the Engineering and Manufacturing Development phase.

~~(FOUO)~~ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] CH-53K program officials must determine whether the CH-53K helicopter can meet those goals during testing to ensure the program will be sufficiently mature to progress into subsequent phases of the acquisition. Table 2 describes select interim performance goals that must be demonstrated by CH-53K test vehicles prior to determining if it is appropriate to begin low-rate initial production.

~~(FOUO)~~ Table 2. CH-53K Interim Performance Goals

Interim Performance Goals	Developmental Test Event	Test Vehicle
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

Initial Testing Postponed

CH-53K program officials postponed the start of flight testing (see Table 5) until technical problems identified during contractor-level testing are resolved. Since 2011, CH-53K program officials have postponed initial flight testing by more than one year due to contractor delays and component test failures. Program officials delayed flight testing until the failures were resolved, as opposed to testing faulty components installed on the aircraft and keeping the program on schedule.

Required Program Deviation Reports Submitted to the Under Secretary of Defense for Acquisition, Technology, and Logistics

CH-53K program officials submitted four PDRs to the Office of the USD(AT&L), reporting cost growth and schedule delays, from January 2009 through June 2012. Program officials used PDRs to communicate to USD(AT&L) officials that the program could no longer meet its cost and schedule goals established in the 2005 APB. DoD Instruction 5000.02 requires the program office to submit a PDR to the USD(AT&L) if the program deviates from cost, schedule, or performance goals contained in the APB.

CH-53K program officials submitted the following PDRs describing the cost growth and schedule delays:

- January 12, 2009: CH-53K program officials stated that program milestones extended beyond the approved schedule goals. Additionally, they stated that they would conduct a risk assessment and develop an updated cost estimate.
- June 2, 2009: CH-53K program officials updated the January 2009 PDR by including additional program schedule delays and associated cost increases. Program officials stated the updated schedule risk assessment and cost estimate identified schedule delays beyond APB thresholds and cost increases in RDT&E and procurement.
- March 9, 2011: CH-53K program officials reported an increase in total operating and support costs, due to increased procurement quantity and service life, and changes to the program's estimating methodologies.
- June 20, 2012: CH-53K program officials reported average procurement and program acquisition unit cost increases of 11.5 and 11.2 percent, respectively. According to CH-53K program officials, unit costs increased

due to changes in cost estimating methodologies, the effect of the previously reported schedule delays, and delayed procurement.

Program Status Communicated to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics and Congress

CH-53K program officials communicated the status of the CH-53K program, including cost growth and schedule delays, to the Office of the USD(AT&L) and Congress in annual SARs and in quarterly DAES reports submitted to the USD(AT&L). According to the Defense Acquisition Guidebook, SARs are mandatory annual reports to Congress that provide the status of total program cost, schedule, and performance, as well as program unit cost for Major Defense Acquisition Programs.

CH-53K program officials reported cost growth and schedule delays in the 2009, 2010, and 2011 annual CH-53K SARs.³

In the 2009 and 2010 SARs, CH-53K program officials reported RDT&E and procurement cost growth and APB milestone delays. The 2011 SAR also included the cost growth in operating and support costs. The three SARs referenced each PDR submitted to the USD(AT&L) as evidence of reporting cost growth and schedule delays to the milestone decision authority.



CH-53K program officials reported cost growth and schedule delays in the 2009, 2010, and 2011 annual CH-53K SARs.

CH-53K program officials reported program status to the USD(AT&L) on a quarterly basis through DAES reports, in accordance with DoD Instruction 5000.02. DAES reports are the principal method used to track acquisition programs between milestone reviews. In the DAES briefing, dated May 23, 2013, CH-53K program officials reported the status of the CH-53K program, including both demonstrated accomplishments and challenges that further delayed the program schedule and increased costs. By submitting annual SARs and conducting quarterly DAES reports, CH-53K program officials transparently reported on the status of the CH-53K program.

Revised Acquisition Program Baseline

CH-53K program officials identified and reported cost growth and schedule delays that exceeded the original APB resulting in the need to update the APB. According to DoD Instruction 5000.02, the APB is a program management document that establishes

³ The 2012 annual CH 53K SAR reported the revised cost and schedule goals from the updated APB.

program cost, schedule, and performance goals for the life of the program, and may only be updated at major milestone decisions or at the direction of the USD(AT&L). The Defense Acquisition Guidebook explains that the APB provides the approved boundaries for the program manager to execute the program. On April 24, 2013, the USD(AT&L) approved the program manager's revised APB to re-baseline the CH-53K program cost and schedule goals.

Cost Growth and Schedule Delays Addressed

CH-53K program officials reported cost growth and schedule delays to oversight representatives of the Office of the USD(AT&L) in PDRs, SARs, and DAES reports, as required by DoD Instruction 5000.02. On December 9, 2011, Office of the USD(AT&L) recommended CH-53K program officials revise the APB. On April 24, 2013, the USD(AT&L) formally approved the revised APB.⁴ The APB stated that the revised baseline would enhance program stability and control cost growth. DoD Directive 5000.01 states that approved baseline goals serve as program control objectives, and developing realistic schedules and stable funding will help achieve program stability. Table 3 shows the cost comparison between the original 2005 APB and the revised 2013 APB.

The APB stated that the revised baseline would enhance program stability and control cost growth.

Table 3. Comparison of 2005 and 2013 APB Costs

Cost	2005 APB	2013 APB
RDT&E	\$4.4B	\$6.3B
Procurement	14.4B	22.2B
Operating and Support	52.1B	78.2B
Total Life-Cycle Cost	\$70.9B	\$106.7B
Program Acquisition Unit Cost ¹	\$120.3M	\$142.5M
Average Procurement Unit Cost ²	\$94.7M	\$113.2M

¹ Program Acquisition Unit Cost is calculated by dividing the total acquisition cost by the total quantity.

² Average Procurement Unit Cost is calculated by dividing total procurement cost by the procurement quantity.

⁴ The signatories of the APB included the Program Manager, Heavy Lift Helicopters; Program Executive Officer, Air Anti-Submarine Warfare, Assault & Special Mission Programs; Deputy Commandant Aviation; Deputy Chief of Naval Operations for Warfare Systems; Deputy Chief of Naval Operations, Integration of Capabilities and Resources; Assistant Secretary of the Navy for Research, Development and Acquisition; and USD(AT&L).

According to the CH-53K program officials, total life-cycle costs increased from the 2005 APB to the 2013 APB due to increases in RDT&E, procurement, and operating and support costs. Specifically,

- RDT&E costs increased due to schedule delays;
- procurement costs increased due to the increased procurement quantities from 156 to 200 aircraft; and
- operating and support costs increased due to the increased procurement quantities, longer support duration, and changed estimating methodologies.

In 2009, CH-53K program officials reported that schedule delays occurred that affected the 2005 APB milestones. The 2005 APB schedule milestones were extended due to delays in contract and subcontract award, contractor staffing, design and schedule maturity, and technical complications. Table 4 shows the milestone schedule comparison between the original 2005 APB and the revised 2013 APB.

Table 4. Comparison of 2005 and 2013 APB Milestones

Program Schedule Milestones	2005 APB	2013 APB
Milestone C	December 2012	February 2016
Technical Evaluation Complete	October 2014	February 2018
Initial Operational Test and Evaluation Complete	June 2015	September 2018
Initial Operational Capability	September 2015	January 2019
Full-Rate Production Decision Review	December 2015	September 2019

Continued Risk for Future Cost Growth and Schedule Delays

CH-53K program officials have not begun testing to demonstrate acceptable performance of the ground and flight test vehicles,⁵ and the program remains at risk of exceeding the newly established cost and schedule outlined in the 2013 APB. Continued delays to the test schedule will delay APB scheduled milestones and increase program cost. Additionally, CH-53K program official's plan for concurrent production and testing and a compressed test schedule could increase cost and delay future scheduled milestones. Office of the USD(AT&L) representatives⁶ stated they are aware of the manufacturing,

⁵ CH-53K program officials plan to use one ground test vehicle and four flight test vehicles for testing and evaluation.

⁶ Representatives from the Office of the Deputy Assistant Secretary of Defense for Strategic and Tactical Systems; Office of the Deputy Assistant Secretary of Defense for Systems Engineering; and Office of the Deputy Assistant Secretary of Defense for Developmental Test and Evaluation.

testing, and performance challenges facing the program and CH-53K program official's plan to mitigate those risks.

Naval Air Systems Command identified the first flight test vehicle as critical to CH-53K program development and preparation for the low-rate initial production decision in February 2016. Since the program's critical design review in 2010, CH-53K program officials delayed the developmental testing for the test vehicles by more than 1 year due to component manufacturing delays and test failures. According to a CH-53K program official, as of July 21, 2013, the first flight test vehicle was 77-percent complete, with estimated delivery on November 15, 2013. Table 5 compares the CH-53K Program Office's planned test schedule start dates in 2011 and 2013.

Table 5. Comparison of February 2011 and June 2013 Test Schedules

Test Vehicle Type	February 2011 Test Schedule	June 2013 Test Schedule
Ground Test Vehicle	September 2012 ¹	November 2013
First Flight Test Vehicle	January 2013 ¹	September 2014

¹ Auditor estimate

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

The CH-53K Program Office could experience delays in component manufacturing and testing, and final assembly of the flight test vehicles, further delaying the start of flight testing and increasing program cost.

Critical Technologies and Performance Capabilities Must Be Demonstrated

CH-53K program officials must demonstrate that CH-53K critical technologies are mature and will perform as intended. Naval Air Systems Command identified two CH-53K critical technologies: the main gear box and the main rotor blades. Defense acquisition guidelines state that critical technologies are those that may pose major risk during development, particularly during the Engineering and Manufacturing Development phase and should be periodically assessed. CH-53K program officials are required to demonstrate the main gear box and main rotor blades can perform in an operational environment before the

⁷ The Principal Deputy USD(AT&L) is authorized to act for the USD(AT&L) and exercise the powers of the USD(AT&L) on any and all matters except in those prohibited or restricted by law.

CH-53K program can enter low-rate initial production in February 2016. However, since no testing has occurred, CH-53K program officials have not yet demonstrated that these critical technologies will perform as intended in the test vehicles, which poses a risk to the program's cost and schedule.

~~(FOUO)~~ CH-53K program officials have not demonstrated the CH-53K helicopter performance capabilities will meet mission requirements due to testing delays. [REDACTED]

[REDACTED] Officials from the CH-53K Program Office, the Office of the Deputy Assistant Secretary of Defense for Systems Engineering, and the Office of the Deputy Assistant Secretary of Defense for Developmental Test and Evaluation [ODASD(DT&E)] stated they believed that CH-53K systems performance will meet mission requirements. For example, the ODASD(DT&E) based its assessment on the program official's planning, requirements, and design maturity. Despite their assessment, CH-53K program officials must demonstrate through testing that the CH-53K will perform as required.

Concurrent Production and Testing and a Compressed Test Schedule Could Increase Cost and Delay Schedule

CH-53K program officials' plan for concurrent production and testing may further increase the program cost and further delay the schedule. On May 30, 2013, program officials modified contract N00019-06-C-0081 to build four production-representative aircraft during the Engineering and Manufacturing Development phase. CH-53K program officials will use the four production-representative aircraft to conduct initial operational test and evaluation. CH-53K program officials plan for production and delivery of these aircraft to overlap with developmental and operational testing. We spoke with representatives from the ODASD(DT&E) regarding the delivery of the production-representative aircraft during the developmental test phase. The representatives indicated they would only have concerns if the delivery is delayed, resulting in further flight testing delays. CH-53K program officials' plan for concurrent production and testing of these four aircraft risks costly retrofits and rework if deficiencies are identified during system and subsystem tests. Aircraft re-design, manufacture, and flight test could increase cost and delay operational capability. According to DoD Instruction 5000.02, CH-53K

CH-53K program officials' plan for concurrent production and testing of these four aircraft risks costly retrofits and rework if deficiencies are identified during system and subsystem tests.

program officials must demonstrate manufacturing is affordable and executable in the Engineering and Manufacturing Development phase.

(FOUO) CH-53K program officials compressed the planned test schedule, which increases the program risks to meet the schedule and performance. [REDACTED]

In 2011, the ODASD(DT&E) expressed concern over the CH-53K compressed test schedule and the low percentage of flight re-tests. In March 2013, an ODASD(DT&E) representative indicated his concern was the many test plan variables that could possibly delay the overall test schedule. The ODASD(DT&E) representative stated he believed the CH-53K Program Office testing plan mitigated the schedule risk to an acceptable level. However, if CH-53K program officials continue to extend the test schedule, there is risk the APB schedule, such as the low-rate initial production decision, may be missed, resulting in additional cost growth.

In March 2013, an ODASD(DT&E) representative indicated his concern was the many test plan variables that could possibly delay the overall test schedule.

Summary

CH-53K program officials generally managed and developed the CH-53K program in accordance with defense acquisition guidelines while preparing for low-rate initial production decision. However, the program remains at risk since testing of the ground and flight test vehicles has not begun. Specifically, the ongoing component manufacturing and testing challenges could delay test vehicle delivery. Additionally, the CH-53K program officials' plan for concurrent production and testing and a compressed test schedule may further increase program cost and delay the schedule. CH-53K program officials must ensure CH-53K critical technologies are mature and will perform as intended to meet mission requirements. For these reasons, the CH-53K program is at increased risk of not being ready for the February 2016 low-rate initial production decision and exceeding the updated APB cost and schedule. We may perform a subsequent audit after testing moves forward to determine whether CH-53K program officials are meeting the new cost and schedule goals and the program is progressing as planned.

Appendix

Scope and Methodology

We conducted this performance audit from February 2013 through August 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions, based on our audit objectives.

We interviewed officials from the following offices responsible for developing, managing, and overseeing the CH-53K program: Naval Air Systems Command, PMA-261, Patuxent River, Maryland; Deputy Assistant Secretary of Defense for Developmental Test and Evaluation; Deputy Assistant Secretary of Defense for Systems Engineering; Office of the Secretary of Defense, Performance Assessments and Root Cause Analyses; Office of the Secretary of Defense, Cost Assessment and Program Evaluation; and the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics.

We reviewed documents that CH-53K program officials used to plan, develop, and prepare the CH-53K helicopter for the low-rate initial production decision dated from October 2005 through May 2013. We reviewed:

- CH-53K Critical Design Review Systems Engineering Plan, Revision A, May 11, 2011;
- Test and Evaluation Master Plan No. 1683 Rev A for the United States Marine Corps Heavy Lift Replacement Program, October 28, 2005;
- Test and Evaluation Master Plan No. 1683 Rev B unsigned, for the United States Marine Corps CH-53K Heavy Lift Replacement Program, current as of March 5, 2013;
- CH-53K Acquisition Program Baseline, December 22, 2005, and Change 1, April 24, 2013;
- CH-53K Selected Acquisition Reports, December 31, 2005, 2006, 2007, 2009, 2010, 2011, and 2012;
- CH-53K Program Deviation Report, January 12, 2009, June 2, 2009, March 9, 2011, and June 20, 2012;
- Naval Air Systems Command Schedule Risk Assessment, July 2012;

- CH-53K Reliability Growth Management Strategy, July 12, 2011;
- CH-53K Technical Maturation Plan, Revision A, October 11, 2005;
- CH-53K DAES Briefing, May 23, 2013;
- CH-53K DAES Assessments, February 2013 and May 2013;
- CH-53K Cost Analysis Requirements Description, Revision 1, February 2012;
- CH-53K Integrated Master Schedule, current as of February 27, 2013;
- CH-53K Life Cycle Sustainment Plan, March 1, 2012;
- CH-53K Acquisition Plan, Revision 2, June 1, 2012;
- Operational Requirements Document for the United States Marine Corps CH-53K Program, Change 4, July 15, 2010; and
- USMC CH-53K Program Acquisition Strategy, Revision 1, January 18, 2012.

To determine whether Naval Air Systems Command effectively managed and developed the CH-53K helicopter in preparation for the low-rate initial production decision, we reviewed program planning and reporting documentation against the policies and guidance in the following DoD and Navy issuances:

- DoD Directive 5000.01, "The Defense Acquisition System," November 20, 2007;
- DoD Instruction 5000.02, "Operation of the Defense Acquisition System," December 8, 2008;
- DoD Directive 5134.16, "Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE))," August 19, 2011;
- Secretary of Navy Instruction 5000.02E, "Department of the Navy Implementation and Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System," September 1, 2011;
- Naval Air Systems Command Instruction 4355.19D, "Systems Engineering Technical Review Process;"
- Defense Acquisition Guidebook;
- Public Law 111-23, "Weapon Systems Acquisition Reform Act of 2009," May 22, 2009;
- Federal Acquisition Regulation; and

- Defense Federal Acquisition Regulation Supplement.

Use of Computer-Processed Data

We did not use computer-processed data to perform this audit.

Use of Technical Assistance

We did not require technical assistance to perform this audit.

Prior Coverage

During the last 5 years, the Government Accountability Office (GAO) and the DoD Inspector General (DoD IG) issued 7 reports discussing the CH-53K helicopter. Unrestricted GAO reports can be accessed over the Internet at <http://www.gao.gov>. Unrestricted DoD IG reports can be accessed at <http://www.dodig.mil/pubs/index.cfm>.

GAO

GAO Report No. GAO-13-294SP, "Defense Acquisitions – Assessments of Selected Weapon Programs," March 2013

GAO Report No. GAO-12-400SP, "Defense Acquisitions – Assessments of Selected Weapon Programs," March 2012

GAO Report No. GAO-11-332, "Defense Acquisitions – CH-53K Helicopter Program Has Addressed Early Difficulties and Adopted Strategies to Address Future Risks," April 2011

GAO Report No. GAO-11-233SP, "Defense Acquisitions – Assessments of Selected Weapon Programs," March 2011

GAO Report No. GAO-10-388SP, "Defense Acquisitions – Assessments of Selected Weapon Programs," March 2010

GAO Report No. GAO-09-326SP, "Defense Acquisitions – Assessments of Selected Weapon Programs," March 2009

DoD IG

DoD IG Report No. DODIG-2013-084, "Increased Procurement Quantity for CH-53K Helicopter Not Justified," May 31, 2013

Acronyms and Abbreviations

APB	Acquisition Program Baseline
DAES	Defense Acquisition Executive Summary
ODASD(DT&E)	Office of the Deputy Assistant Secretary of Defense for Developmental Test and Evaluation
PDR	Program Deviation Report
SAR	Selected Acquisition Report
RDT&E	Research, Development, Test, and Evaluation
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics



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4800 Mark Center Drive
Alexandria, VA 22350-1500
www.dodig.mil
Defense Hotline 1.800.424.9098

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